Summary of the MSc thesis No 12406, Faculty of Veterinary Medicine, Urmia University.

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Author: Author: Maryam TalebiLeili

Title of thesis: Investigating conditioned environmental conditions of spleen cells treated with different amounts of adenosine on 4T1 breast cancer cells.

Summary:

According to the research, it has been reported that one of the mechanisms of tumor-mediated immune suppression that has been considered as a potential therapeutic target is purinergic signaling. With the activation of this pathway, adenosine purine nucleoside increases in the tumor environment and the function of immune cells can be suppressed. The purpose of this study is to investigate the conditioned medium of existing cells treated with different types of adenosine on breast cancer cells of the 4T1 cell line. For this purpose, mouse spleen was isolated under completely sterile conditions and then splenocytes were isolated for killing. Then 25, 50 and 100 µM of adenosine were added to splenocytes. After 72 hours, the supernatant liquid of adenosine and splenocyteswas collected and the supernatant was separated and discarded. After discarding the supernatant liquidand adding culture medium without serum, splenocytes were incubated for 24 hours. And after collecting the supernatantliquid, it is used in the amount of 50% in the culture medium of 4T1 cancer cells. After 48 hours of survival of 4T1 cells, it was measured by MTT and the amount of apoptosis in the cells was evaluatedby staining with acridine orange and propidium iodide dyes. Finally, cell viability was examinedand counted by trypan blue staining under Neubauerslides. Treatment of spleen cells with adenosine at 25 µM leads to increased survival and growth rate, and increased apoptosis of cancer cells with cell environmental conditions on 4T1 cancer cells. In this study, it appears that adenosine at this low level is beneficial for the function of immune cells towards cancer cells, but when adenosine increases the function of immune cells, it increases tumor growth.

Key words: breast cancer, adenosine, spleen cells